

Date: Tue, 28 Dec 93 04:30:06 PST  
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>  
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Precedence: Bulk  
Subject: Info-Hams Digest V93 #1516  
To: Info-Hams

Info-Hams Digest                    Tue, 28 Dec 93                    Volume 93 : Issue 1516

## Today's Topics:

## Daily Summary of Solar Geophysical Activity for 27 December

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We trust that readers are intelligent enough to realize that all text herein consists of personal comments and does not represent the official policies or positions of any party. Your mileage may vary. So there.

Date: Mon, 27 Dec 1993 22:42:07 MST  
From: destroyer!nntp.cs.ubc.ca!alberta!nebulus!ve6mgs!usenet@uunet.uu.net  
Subject: Daily Summary of Solar Geophysical Activity for 27 December  
To: info-hams@ucsd.edu

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## DAILY SUMMARY OF SOLAR GEOPHYSICAL ACTIVITY

27 DECEMBER, 1993

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(Based In-Part On SESC Observational Data)

SOLAR AND GEOPHYSICAL ACTIVITY INDICES FOR 27 DECEMBER, 1993

!!BEGIN!! (1.0) S.T.D. Solar Geophysical Data Broadcast for DAY 361, 12/27/93  
10.7 FLUX=140.4 90-AVG=099 SSN=107 BKI=0121 1211 BAI=003  
BGND-XRAY=B6.9 FLU1=9.0E+05 FLU10=1.1E+04 PKI=1121 2211 PAI=005

BOU-DEV=004,009,013,005,008,019,008,006 DEV-AVG=009 NT SWF=01:012  
XRAY-MAX= M1.9 @ 1853UT XRAY-MIN= B5.0 @ 0649UT XRAY-AVG= C1.5  
NEUTN-MAX= +003% @ 2110UT NEUTN-MIN= -002% @ 2020UT NEUTN-AVG= -0.0%  
PCA-MAX= +0.1DB @ 0915UT PCA-MIN= -0.5DB @ 0945UT PCA-AVG= -0.0DB  
BOUTF-MAX=55351NT @ 2346UT BOUTF-MIN=55323NT @ 1900UT BOUTF-AVG=55343NT  
GOES7-MAX=P:+000NT@ 0000UT GOES7-MIN=N:+000NT@ 0000UT G7-AVG=+064,+000,+000  
GOES6-MAX=P:+128NT@ 1727UT GOES6-MIN=N:-059NT@ 0815UT G6-AVG=+088,+024,-030  
FLUXFCST=STD:130,135,135;SESC:130,135,135 BAI/PAI-FCST=015,025,030/015,025,030  
KFCST=3333 3333 3344 5434 27DAY-AP=004,022 27DAY-KP=2101 1211 2115 5435  
WARNINGS=\*SWF;\*MAJFLR  
ALERTS==MINFLR:M1.9/SF@1853,N10W20(7640)  
!!END-DATA!!

NOTE: The Effective Sunspot Number for 26 DEC 93 was 48.6.  
The Full Kp Indices for 26 DEC 93 are: 2- 0+ 1o 2- 3- 2+ 2o 3-

#### SYNOPSIS OF ACTIVITY

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Solar activity was moderate. Region 7640 (N09W23) continued as the flare producer. It was responsible for an M1/SF flare at 27/1836UT and six small C-class flares through the period. New Region 7644 (N11W11) was numbered after being split off the trailer portion of 7640.

Solar activity forecast: solar activity is expected to be low to moderate. Region 7640 has the best chance of producing additional, occasional M-class activity and an outside chance of an isolated X-class flare. Region 7644 also has a small chance of an isolated M-class flare.

STD: The frequency of flaring within Region 7640 decreased today. However, the signatures of those flares which were observed changed from very impulsive bursts to longer decaying events. Also, the background x-ray flux appears to have increased to near C-class levels. There is some question whether the observed 10.7 cm flux of 140.4 was flare-enhanced. A second 10.7 cm flux measurement taken at 22:00 UTC measured 135.4 sfu. This, together with the fact that there apparently were no 10.7 cm emissions from the M1.9/SF flare at 18:53 UTC suggests that the increased emission likely was not directly flare enhanced, but was rather a natural increase in radiation perhaps related to the flare but not directly correlated with it. The region may be gradually stabilizing, or it may have entered a period of dormancy where magnetic energy is being stored instead of released in the form of smaller flares. If the latter is true, larger flares could ensue provided a

suitable trigger mechanism appears.

The geomagnetic field has been at mostly quiet levels for the past 24 hours.

Geophysical activity forecast: the geomagnetic field is expected to be quiet to unsettled for the next 24 hours, then unsettled to minor storm for the remainder of the forecast period as a coronal hole rotates into a favorable position.

Event probabilities 28 dec-30 dec

Class M	50/50/50
Class X	05/05/05
Proton	05/05/05
PCAF	Green

Geomagnetic activity probabilities 28 dec-30 dec

A. Middle Latitudes	
Active	20/30/25
Minor Storm	10/25/25
Major-Severe Storm	05/05/10
B. High Latitudes	
Active	25/25/25
Minor Storm	15/35/35
Major-Severe Storm	05/10/15

HF propagation conditions were normal over all regions. Similar conditions will persist until 29 December when the coronal-hole related disturbance noted above should begin degrading high and polar latitude paths. The activity should peak on 30 December where activity could surpass the minor storm threshold. Poor to very poor propagation can be expected over the high and polar latitude paths on 30 December if this disturbance is as geoeffective as expected. Middle latitude paths should see good to fair propagation on these active days.

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REGIONS WITH SUNSPOTS. LOCATIONS VALID AT 27/2400Z DECEMBER

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NMBR	LOCATION	LO	AREA	Z	LL	NN	MAG	TYPE
7640	N08W25	204	0530	FKI	18	054	BETA-GAMMA	
7641	N03W22	201	0060	HSX	02	002	ALPHA	

7643 S17E28 151 0000 AXX 00 001 ALPHA  
7644 N11W11 190 0070 DAO 06 010 BETA  
7642 N11W60 240 PLAGE  
REGIONS DUE TO RETURN 28 DECEMBER TO 30 DECEMBER  
NMBR LAT LO  
7629 S20 083  
7630 S10 087  
7634 S12 073

LISTING OF SOLAR ENERGETIC EVENTS FOR 27 DECEMBER, 1993

A. ENERGETIC EVENTS:

BEGIN	MAX	END	RGN	LOC	XRAY	OP	245MHZ	10CM	SWEET
0313	0318	0322	7640	N04W18	C1.6	SF	250	30	
0909	0915	0923	7640	N07W13	C4.8	SF	550	31	
0928	0928	0930					460		
1326	1326	1326					190		
1445	1445	1445					110		
1740	1740	1742					160		
1836	1853	1859	7640	N10W20	M1.9	SF			

POSSIBLE CORONAL MASS EJECTION EVENTS FOR 27 DECEMBER, 1993

BEGIN	MAX	END	LOCATION	TYPE	SIZE	DUR	II	IV
NO EVENTS OBSERVED								

INFERRRED CORONAL HOLES. LOCATIONS VALID AT 27/2400Z

ISOLATED HOLES AND POLAR EXTENSIONS

EAST	SOUTH	WEST	NORTH	CAR	TYPE	POL	AREA	OBSN
NO DATA AVAILABLE FOR ANALYSIS								

SUMMARY OF FLARE EVENTS FOR THE PREVIOUS UTC DAY

Date	Begin	Max	End	Xray	Op	Region	Locn	2695 MHz	8800 MHz	15.4 GHz
26 Dec:	0008	0013	0015	B7.7						
	0023	0029	0032	C1.6						
	0334	0339	0343	B6.6	SF	7640	N06W01			
	0508	0519	0528	C1.7	SF	7640	N05W04			
	0538	0548	0550	C3.3						
	0614	0617	0620	C2.5	SF	7640	N07W03			
	0640	0645	0648	C1.5						

0715	0727	0734	C4.6	1F	7640	N06W06		63
0840	0848	0851	C3.6	SF	7640	N06W05		
0910	0914	0921	C2.8	SF	7640	N06W00		
0937	0941	0944	C2.5	SF	7640	N05W09		
0948	0951	0953	B7.5					
0958	1009	1020	C1.4	SF	7640	N06W05		
1029	1039	1043	C4.0					
1118	1121	1123	B7.7					
1126	1131	1135	C3.0					
1218	1221	1223	B7.3					
1335	1341	1346	C2.4	1N	7640	N10W01		
1459	1505	1509	C5.7	1F	7640	N07W06		
1541	1551	1601	C6.5	1F	7640	N07W11	69	47
1702	1706	1709	C2.2	SF	7640	N06W12		23
1733	1736	1738	C1.0	SF	7640	N11W09		
1741	1745	1747	C1.0					
1754	1803	1812	C2.0	SF	7640	N11W10		
1831	1840	1847		SF	7640	N06W09		
1900	1906	1919	C1.6	SF	7640	N06W10		
1931	1935	1937	C1.5	SF	7640	N05W14		
2028	2032	2036	C1.1					
2101	2110	2127	C1.3					
2236	2240	2245	C3.0	SF	7640	N08E02		

#### REGION FLARE STATISTICS FOR THE PREVIOUS UTC DAY

	C	M	X	S	1	2	3	4	Total	(%)
	--	--	--	--	--	--	--	--	--	--
Region 7640:	16	1	0	14	5	0	0	0	019	(61.3)
Uncorrellated:	8	0	0	0	0	0	0	0	012	(38.7)

Total Events: 031 optical and x-ray.

#### EVENTS WITH SWEEPS AND/OR OPTICAL PHENOMENA FOR THE LAST UTC DAY

Date	Begin	Max	End	Xray	Op	Region	Locn	Sweeps/Optical	Observations
	--	--	--	--	--	--	--	--	--
26 Dec:	0023	0029	0032	C1.6				III	
	0508	0519	0528	C1.7	SF	7640	N05W04	III	
	0538	0548	0550	C3.3				III	
	0715	0727	0734	C4.6	1F	7640	N06W06	II,III	
	0910	0914	0921	C2.8	SF	7640	N06W00	III	

NOTES:

All times are in Universal Time (UT). Characters preceding begin, max, and end times are defined as: B = Before, U = Uncertain, A = After. All times associated with x-ray flares (ex. flares which produce associated x-ray bursts) refer to the begin, max, and end times of the x-rays. Flares which are not associated with x-ray signatures use the optical observations to determine the begin, max, and end times.

Acronyms used to identify sweeps and optical phenomena include:

II	= Type II Sweep Frequency Event
III	= Type III Sweep
IV	= Type IV Sweep
V	= Type V Sweep
Continuum	= Continuum Radio Event
Loop	= Loop Prominence System,
Spray	= Limb Spray,
Surge	= Bright Limb Surge,
EPL	= Eruptive Prominence on the Limb.

\*\* End of Daily Report \*\*

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End of Info-Hams Digest V93 #1516

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